

Application 10/659,906  
Amendment dated October 7, 2003

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**LISTING OF CLAIMS:**

23. (Currently Amended) A mobile communication system, comprising:  
a mobile antenna arranged to receive a plurality of signals from multiple signal paths from each of plural remote antennas of an external source;  
an input circuit coupled to receive the plurality of signals from the mobile antenna, the input circuit producing a plurality of input signals including a first input signal from a first remote antenna and a second input signal from a second remote antenna, at least one of the first and at least one of the second input signals corresponding to the same datum; and  
a correction circuit coupled to receive a plurality of first estimate signals, a second estimate signal and the first and second input signals, the plurality of first estimate signals corresponding to respective signal paths of the first input signal, the correction circuit producing a first symbol estimate and a second symbol estimate in response to the first and second estimate signals and the first and second input signals.

24. (Previously presented) A mobile communication system as in claim 23, further comprising a combining circuit coupled to receive a plurality of first symbol estimates including the first symbol estimate and coupled to receive a plurality of second symbol estimates including the second symbol estimate, the combining circuit producing a first symbol signal in response to the plurality of first symbol estimates and producing a second symbol signal in response to the plurality of second symbol estimates.

TI-28441B

2

Application 10/639,906  
Amendment dated October 7, 2003

25. (Previously presented) A mobile communication system as in claim 24, wherein the input circuit, the correction circuit and the combining circuit are formed on a single integrated circuit.

26. (Previously presented) A mobile communication system as in claim 24, wherein each of the first and second symbol signals include at least one of a pilot symbol, a transmit power control symbol, a rate information symbol and a data symbol.

27. (Previously presented) A mobile communication system as in claim 23, wherein each of the first and second estimate signals include at least one of a pilot symbol, a transmit power control symbol, a rate information symbol and a data symbol.

28. (Previously presented) A mobile communication system as in claim 23, wherein a total diversity of each of the first and second symbol signals is at least twice a number of the plural remote antennas.

29. (Previously presented) A mobile communication system as in claim 23, wherein each of the first and second input signals is a wideband code division multiple access signal.

30. (Previously presented) A mobile communication system as in claim 29, wherein a total diversity of each of the first and second symbol signals is at least twice a number of the plural remote antennas.

31. (Previously presented) A mobile communication system as in claim 23, wherein the mobile antenna receives the first and second input signals over a common channel.

TI-28441B

3

Application 10/659,906  
Amendment dated October 7, 2003

32. (Previously presented) A mobile communication system as in claim 23, wherein the mobile antenna receives the first and second input signals over a common frequency band.

33. (Previously presented) A mobile communication system as in claim 23, wherein the first input signal comprises a data symbol and the second input signal comprises a complex conjugate of the data symbol.

34. (New) An apparatus, comprising:  
a correction circuit coupled to receive a first transmitted symbol from a first antenna at a first time and a conjugate of a second transmitted symbol from a second antenna at the first time, the correction circuit producing a first symbol estimate in response to a first received symbol and the conjugate of a second received symbol;  
and

a combining circuit coupled to receive a plurality of symbol estimates including the first symbol estimate, the plurality of symbol estimates corresponding to a respective plurality of signal paths, the combining circuit producing a first symbol in response to the plurality of symbol estimates.

35. (New) An apparatus as in claim 34, wherein the correction circuit is further coupled to receive the second symbol from the first antenna at a second time and a complement of a conjugate of the first symbol from the second antenna at the second time.

36. (New) An apparatus as in claim 35, wherein the correction circuit produces the first symbol estimate and a second symbol estimate in response to the first transmitted symbol, the conjugate of the second transmitted symbol, a second transmitted symbol, and the complement of a conjugate of the first transmitted symbol.

TI-28441B

4

Application 10/659,906  
Amendment dated October 7, 2005

37. (New) An apparatus as in claim 36, wherein the correction circuit is further coupled to receive a first estimate signal and a second estimate signal and wherein the correction circuit produces the first symbol estimate and the second symbol estimate in response to the first transmitted symbol, the conjugate of the second transmitted symbol, the second transmitted symbol, the complement of the conjugate of the first transmitted symbol, the first estimate signal, and the second estimate signal.

38. (New) An apparatus as in claim 34, wherein the correction circuit receives the first symbol and the conjugate of the second symbol over a common channel.

39. (New) An apparatus as in claim 34, wherein the correction circuit receives the first symbol and the conjugate of the second symbol over a common frequency band.

40. (New) An apparatus as in claim 34, wherein the plurality of symbol estimates corresponds to one of the first and second symbols.

41. (New) An apparatus as in claim 34, wherein the combining circuit is a rake combiner.

42. (New) A method of processing signals in a communication circuit, comprising the steps of:

receiving a first transmitted symbol from a first antenna at a first time and a conjugate of a second transmitted symbol from a second antenna at the first time;  
producing a first symbol estimate in response to a first received symbol and a conjugate of a second received symbol;

Application 10/659,906  
Amendment dated October 7, 2003

receiving a plurality of symbol estimates including the first symbol estimate, the plurality of symbol estimates corresponding to a respective plurality of signal paths; and

producing a first symbol in response to the plurality of symbol estimates.

43. (New) The method of claim 42, further comprising the step of receiving the second symbol from the first antenna at a second time and a complement of a conjugate of the first symbol from the second antenna at the second time.

44. (New) The method of claim 43, further comprising the step of producing the first symbol estimate and a second symbol estimate in response to the first symbol, the conjugate of the second symbol, the second symbol, and the complement of the conjugate of the first symbol.

45. (New) The method of claim 43, further comprising the step of receiving a first estimate signal and a second estimate signal and producing the first symbol estimate and the second symbol estimate in response to the first symbol, the conjugate of the second symbol, the second symbol, the complement of the conjugate of the first symbol, the first estimate signal, and the second estimate signal.

46. (New) The method of claim 42, wherein the first symbol and the conjugate of the second symbol are received over a common channel.

47. (New) The method of claim 42, wherein the first symbol and the conjugate of the second symbol are received over a common frequency band.

48. (New) The method of claim 42, wherein the plurality of symbol estimates corresponds to one of the first and second symbols.

TI-28441B

6

Application 10/650,006  
Amendment dated October 7, 2003

49. (New) The method of claim 42, wherein the combining circuit is a rake combiner.

50. (New) An apparatus, comprising:  
a correction circuit coupled to receive a first symbol comprising one symbol transmitted from a first antenna at a first time and a conjugate of another symbol transmitted from a second antenna at the first time, the correction circuit producing a first symbol estimate in response to the first symbol and the conjugate of a second symbol; and  
a combining circuit coupled to receive a plurality of symbol estimates including the first symbol estimate, the plurality of symbol estimates corresponding to a respective plurality of signal paths, the combining circuit producing a combined symbol in response to the plurality of symbol estimates.

51. (New) An apparatus as in claim 50, wherein the correction circuit is further coupled to receive the second symbol from the first antenna at a second time and a complement of a conjugate of the first symbol from the second antenna at the second time.

52. (New) An apparatus as in claim 51, wherein the correction circuit produces the first symbol estimate and a second symbol estimate in response to receiving said one symbol, said conjugate of said another symbol, yet another symbol, and a complement of a conjugate of said one symbol.

53. (New) An apparatus as in claim 50, wherein the correction circuit is further coupled to receive a first estimate signal and a second estimate signal and wherein the correction circuit produces the first symbol estimate and the second symbol estimate in response to said one symbol, the conjugate of the second transmitted symbol, said another symbol, the complement of the conjugate of said one symbol, the first estimate signal, and the second estimate signal.

TI-28441B

7

Application 10/659,906  
Amendment dated October 7, 2003

54. (New) An apparatus as in claim 50, wherein the correction circuit receives the first symbol and the conjugate of the second symbol over a common channel.

55. (New) An apparatus as in claim 50, wherein the correction circuit receives the first symbol and the conjugate of the second symbol over a common frequency band.

56. (New) An apparatus as in claim 50, wherein the plurality of symbol estimates corresponds to one of the first and second symbols.

57. (New) An apparatus as in claim 50, wherein the combining circuit is a rake combiner.

58. (New) A method of processing signals in a communication circuit, comprising the steps of:

receiving a first symbol comprising a symbol from a first antenna at a first time and a conjugate of another symbol from a second antenna at the first time;

producing a first symbol estimate in response to the first symbol and a conjugate of a second symbol;

receiving a plurality of symbol estimates including the first symbol estimate, the plurality of symbol estimates corresponding to a respective plurality of signal paths; and

producing a combined symbol in response to the plurality of symbol estimates.

59. (New) The method of claim 58, further comprising the step of receiving the second symbol from the first antenna at a second time and a complement of a conjugate of the first symbol from the second antenna at the second time.

TI-28441B

8

Application 10/659,906  
Amendment dated October 7, 2003

60. (New) The method of claim 59, further comprising the step of producing the first symbol estimate and a second symbol estimate in response to the first symbol, the conjugate of the second symbol, the second symbol, and the complement of the conjugate of the first symbol.

61. (New) The method of claim 59, further comprising the step of receiving a first estimate signal and a second estimate signal and producing the first symbol estimate and the second symbol estimate in response to the first symbol, the conjugate of the second symbol, the second symbol, the complement of the conjugate of the first symbol, the first estimate signal, and the second estimate signal.

62. (New) The method of claim 58, wherein the first symbol and the conjugate of the second symbol are received over a common channel.

63. (New) The method of claim 58, wherein the first symbol and the conjugate of the second symbol are received over a common frequency band.

64. (New) The method of claim 58, wherein the plurality of symbol estimates corresponds to one of the first and second symbols.

65. (New) The method of claim 58, wherein the combining circuit is a rake combiner.